ZYXEL COMMUNICATOINS CORPERATION

NBG-510S

Home Remote Access Solution

Support Note

4/26/2007

ZyXEL
Unleash Networking Power

Contents

1 Application Note 3
1.1 User Portal Introduction 3
1.2 Deployment 3
1.2.1 Scenario 3
1.2.2 Before configuring on NBG-510S 4
1.2.3 Configure on NBG-510S 4
1.2.3.1 Set up the WAN connection. 4
1.2.3.2 Configure the DDNS. 5
1.2.3.3 Configure File Share server 6
1.2.3.4 Configure the administrator's information 11
1.2.3.5 Create user accounts 11
1.2.3.6 Add Shared Resource 12
1.2.4 Accessing the Secure Home Portal 22
1.2.4.1 Before Accessing 22
1.2.4.2 Remote Accessing the Secure Home Portal 23
2 Product FAQ 30
1. What is the NBG-510S Internet Access Sharing Router? 30
2. Will the NBG-510S work with my Internet connection? 30
3. What do I need to use the NBG-510S? 30
4. What is PPPoE? 30
5. Does the NBG-510S support PPPoE? 30
6. How do I know I am using PPPoE? 30
7. Why does my provider use PPPoE? 31
8. Which Internet Applications can I use with the NBG-510S? 31
9. How can I configure the NBG-510S? 31
10. What network interface does the NBG-510S support? 31
11. What can we do with NBG-510S? 31
12. Does NBG-510S support dynamic IP addressing? 31
13. What is the difference between the internal IP and the real IP from my ISP? 31

All contents copyright (c) 2007 ZyXEL Communications Corporation.

14. How does e-mail work through the NBG-510S? 31
15. What is the main difference between WinGate and the NBG-510S? 32
16. What is the difference between the 'Standard' and 'RoadRunner' service? 32
17. Is it possible to access a server running behind SUA from the outside Internet? If possible, how? 33
18. What DHCP capability does the NBG-510S support? 33
19. What network interface does NBG-510S support? 33
3 Advanced FAQ 33
1. Why is my connection to the Secure Home Portal secure? 33
2. How can I remotely access the Secure Home Portal of NBG-510S? 33
3. Why can't I see my file share server in the list of File Servers when I'm managing User Views? 33
4. How fast can the data be? 34
5. What is BOOTP/DHCP? 34
6. What is DDNS? 35
7. When do I need DDNS service? 35
8. What DDNS servers does the NBG-510S support? 35
9. Can the NBG-510S SUA handle IPsec packets sent by the IPsec gateway? 35
10. How do I setup my NBG-510S for routing IPsec packets over SUA? 35
11. Why can't I use video conferencing with MSN? 36
12. How can I access internal server via public IP address assigned on WAN? 36
13. When playing online games, the game client cannot connect to the game server, what should I do? 36
14. What types of content filter does NBG-510S provide? 41
15. How many URL keywords does NBG-510S support? 41

All contents copyright (c) 2007 ZyXEL Communications Corporation.

1 Application Note

- User Portal Introduction
- Deployment

1.1 User Portal Introduction

The User Portal is a web-based portal, providing a collection of photos, videos, music, folders and desktop links. This feature in NBG-510S provides secure remote access to the resources in the LAN of the NBG-510S. All the connections to the Portal will be through SSL secured communications. SSL topology encapsulates the sensitive data in SSL protocol to secure the communication between SSL client and SSL server via several encryption, authentication, and secret exchange methods.

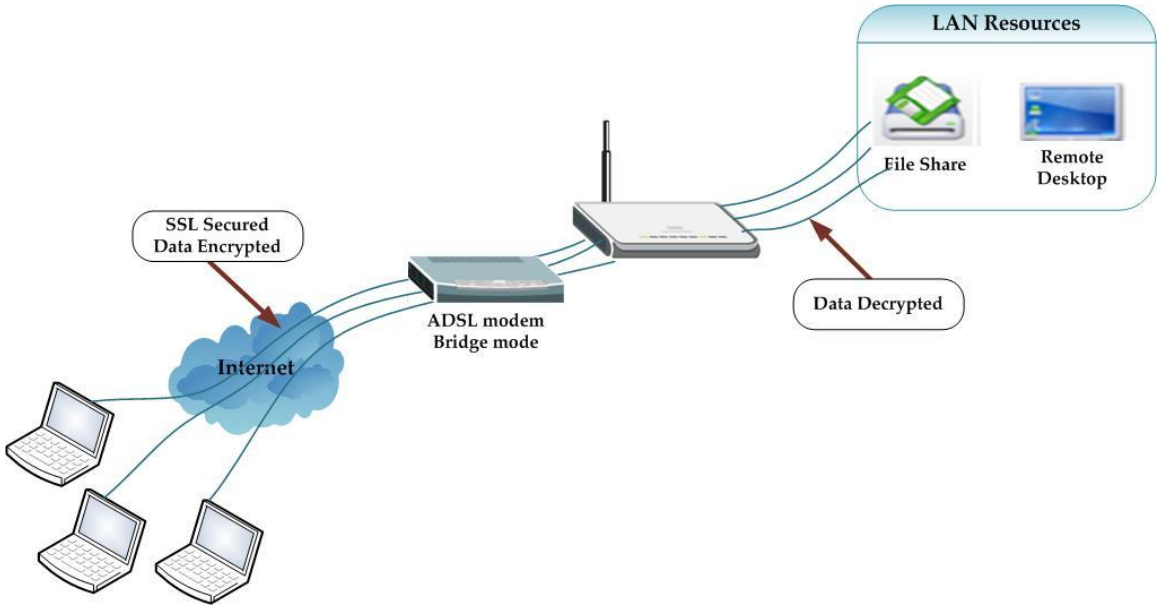
1.2 Deployment

- Scenario
- Before configuring on NBG-510S
- Configure on NBG-510S
- Accessing the Secure Home Portal

1.2.1 Scenario

Below is a figure to show the typical topology for the **User Portal** application.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



The administrator would like to share some of the files in the LAN with his friends and relatives, including his photos, music, videos, and some of his folders. When the administrator is away from home, he would also want to remotely access his PC in LAN of NBG-510S via either of the two protocols, RDP and VNC. If he like, he can even allow some of the clients to remotely access the desktops of some of his LAN PC's.

Supposing there're three clients, John, Lily and guest.

Note: guest is a default client account in the **User Portal** of NBG-510S. Since anyone who hasn't got a user account in the NBG-510S can get into the **User Portal** using this account, it can't be set to use the function of remotely accessing the desktops of the LAN PC's for security consideration.

1.2.2 Before configuring on NBG-510S

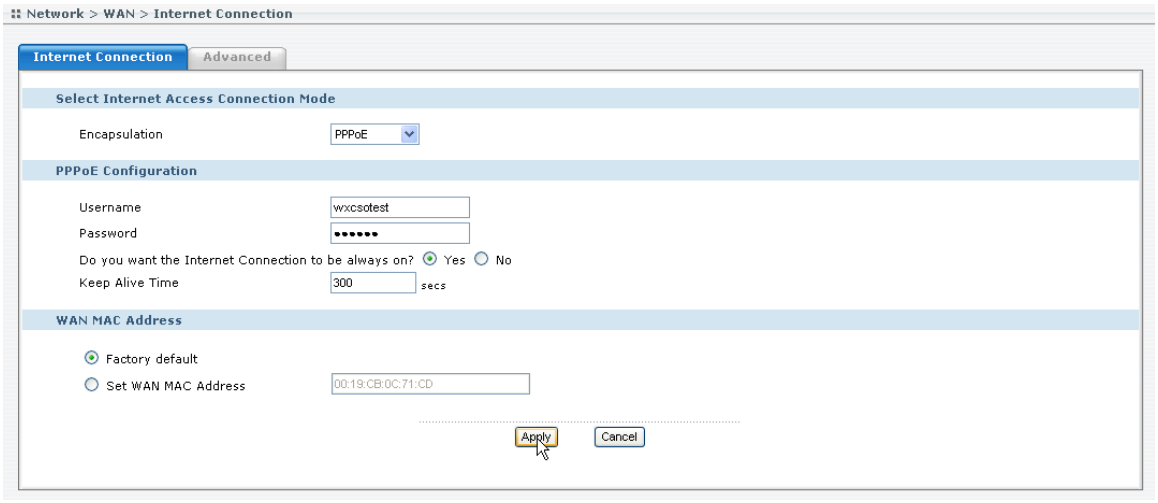
In most cases in a home network, the WAN IP of the broadband router is got using ADSL connection. Then an ADSL modem should be placed in front of the NBG-510S. The working mode of the ADSL modem should be set as **Bridge mode**.

1.2.3 Configure on NBG-510S

1.2.3.1 Set up the WAN connection.

Go to Network→WAN→Internet Connection. The Encapsulation method should be PPPoE. The Username and Password are what you get from your ISP when you registered the ADSL service.

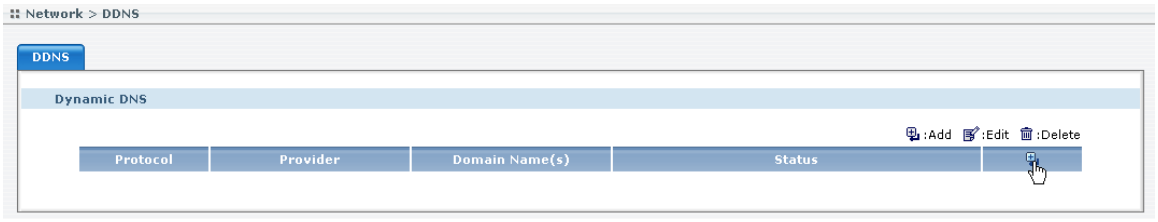
All contents copyright (c) 2007 ZyXEL Communications Corporation.



Note: Since the WAN IP address is assigned dynamically from ISP, it can change sometimes. To ensure remote User Portal clients can access NBG-510S all the time, we can resort to the DDNS function.

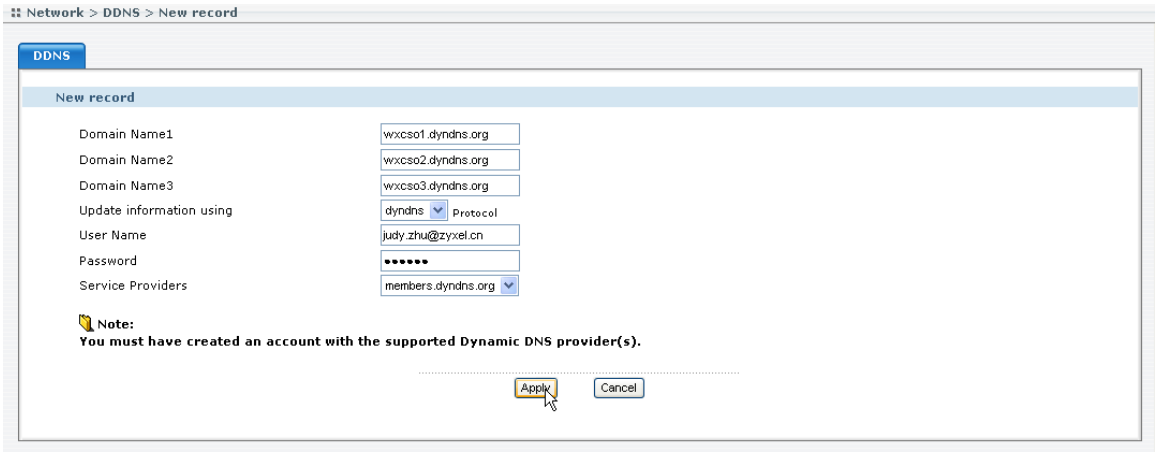
1.2.3.2 Configure the DDNS.

1. Go to Network→DDNS, click the button to add a DDNS rule.



2. The service provider now NBG-510S supports at the time of writing is *members.dyndns.org*. The Domain Names are what you registered on the service provider, and the User Name and Password are the account you registered on the service provider.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

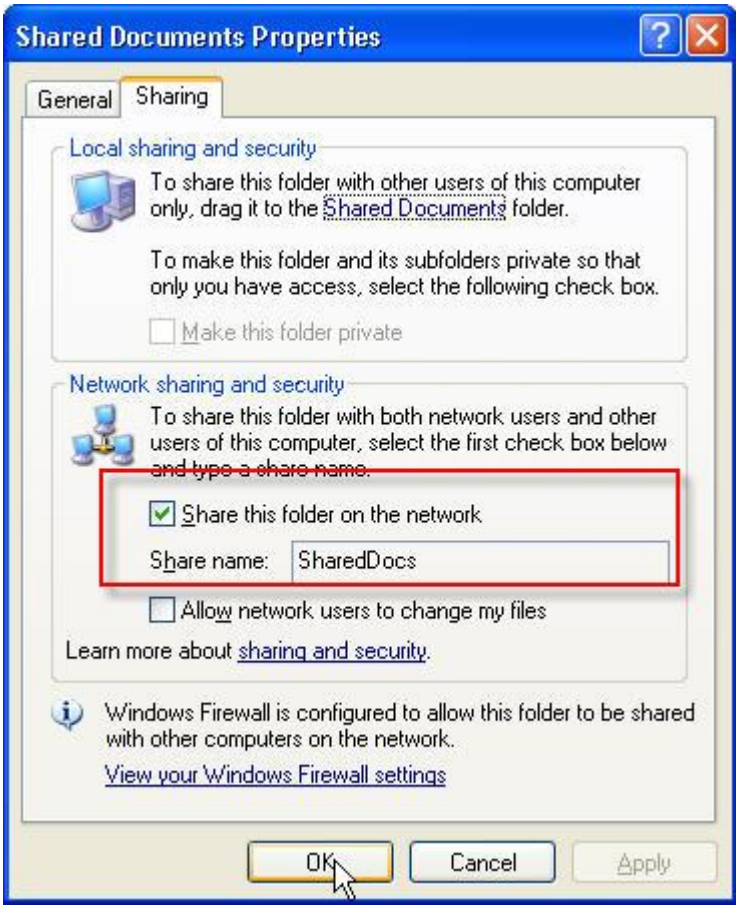


After setting up the DDNS, every time WAN port changes its IP address, the device will update to the service provider with the new IP address. Remote User Portal clients are then able to access NBG-510S by the domain name all the time.

1.2.3.3 Configure File Share server

1. Make sure the folders which contain the files that are to be shared are shared in the LAN network.
   Right click the folder, select **Properties** to let out the folder's properties window. In the **Sharing** tab, check the **Share this folder on the network** option.

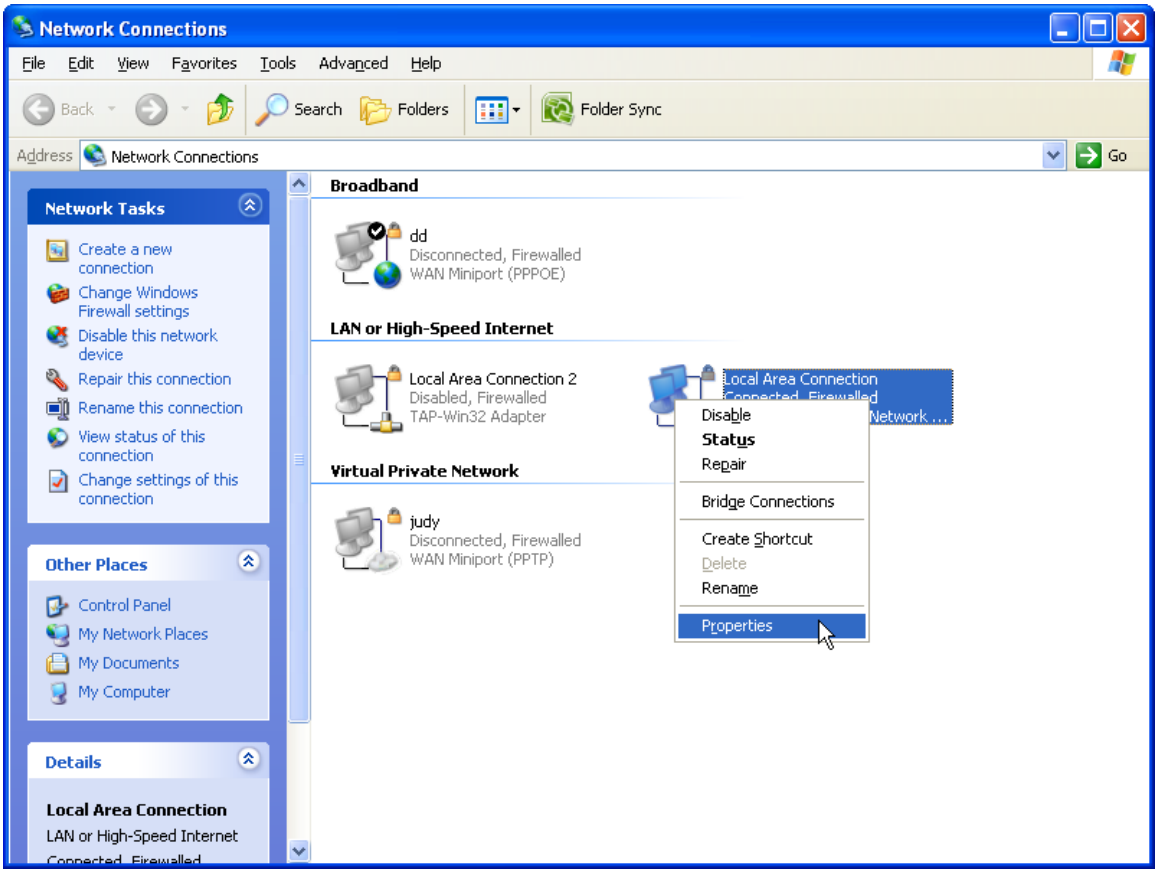
All contents copyright (c) 2007 ZyXEL Communications Corporation.


Shared Documents Properties
General
Sharing
Local sharing and security
To share this folder with other users of this computer only, drag it to the Shared Documents folder.
To make this folder and its subfolders private so that only you have access, select the following check box.
Make this folder private
Network sharing and security
To share this folder with both network users and other users of this computer, select the first check box below and type a share name.
Share this folder on the network
Share name: SharedDocs
Allow network users to change my files
Learn more about sharing and security.
Windows Firewall is configured to allow this folder to be shared with other computers on the network.
View your Windows Firewall settings
OK
Cancel
Apply

2. The firewall software is recommended to be **OFF.** If the firewall software is running on the PC, make sure the ports 137/138/139 are open.

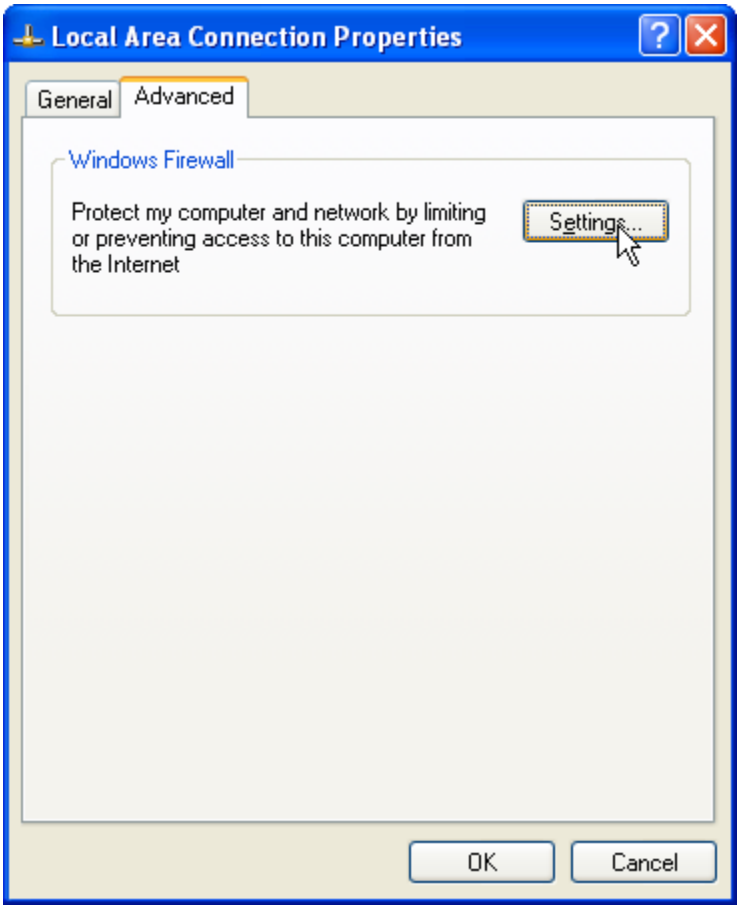
    a. In Network Connections, right click the Local Area Connection icon, and choose Properties.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



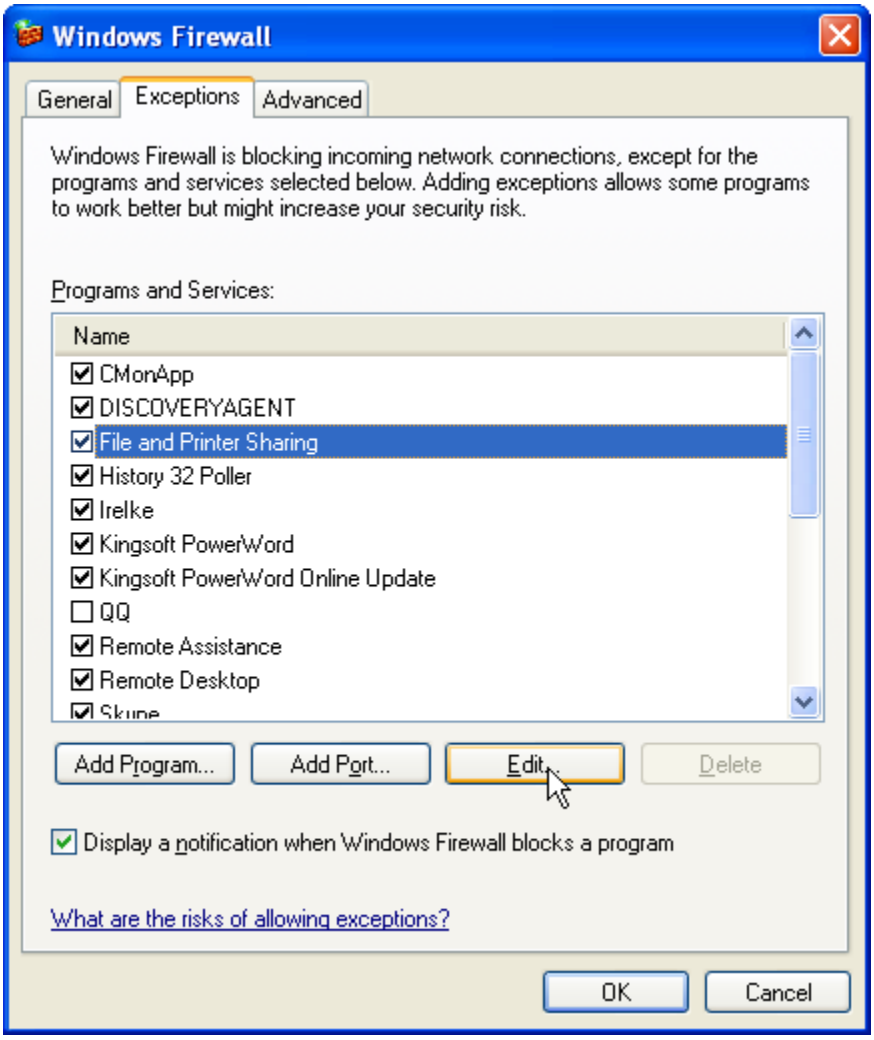
b. In the **Advanced** tab, click **Settings…**

All contents copyright (c) 2007 ZyXEL Communications Corporation.



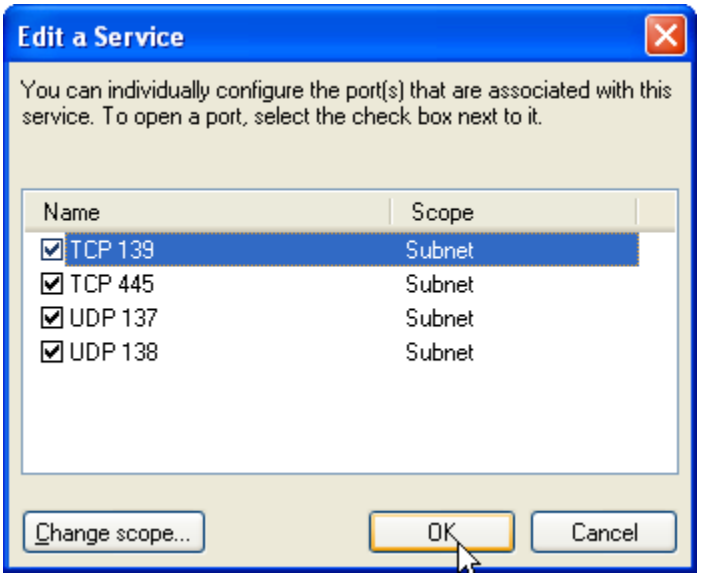
c. In the Exceptions tab, choose File and Printer Sharing, and click Edit button.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



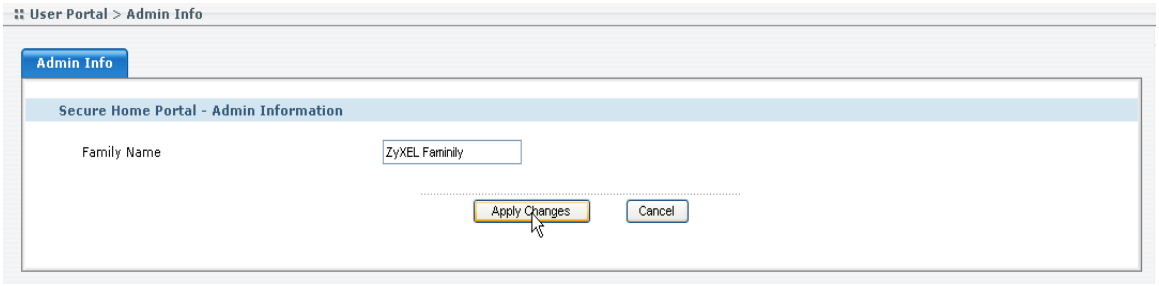
d. Make sure the ports shown in this figure are enabled.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



1.2.3.4 Configure the administrator's information

Go to User Portal→Admin Info.

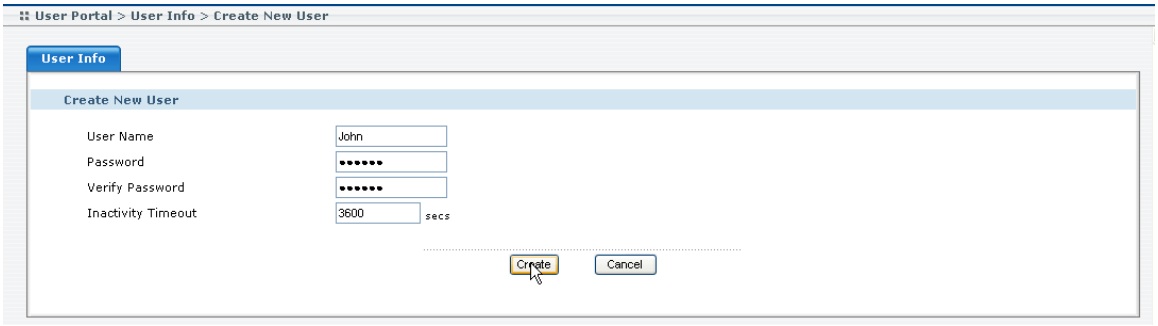


The administrator's Family Name will appear on the top left corner of the User Portal upon user logged in.

1.2.3.5 Create user accounts

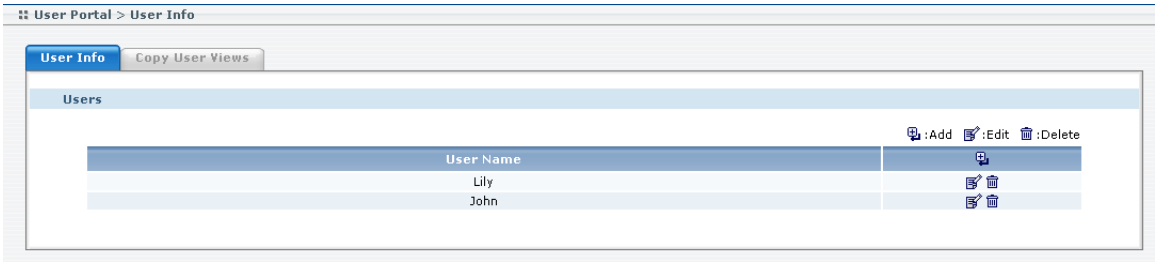
Go to User Portal→User Info. Create two accounts for John and Lily.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



Similarly, create an account for Lily.

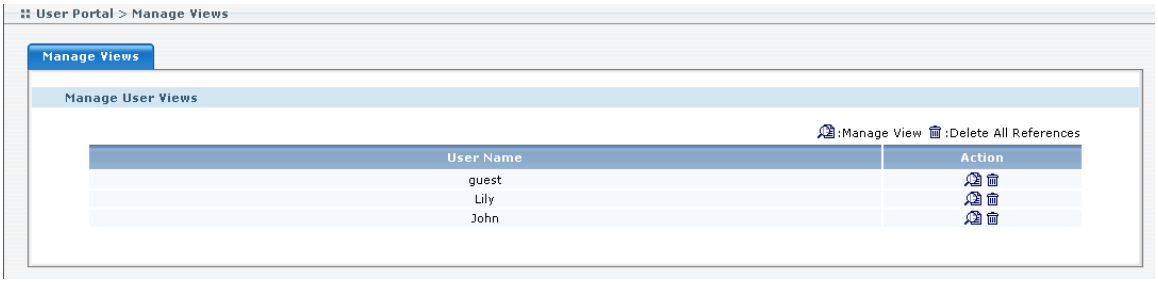
Then there will be two records of the accounts created just now.



"Guest "is a default user account, and isn't listed in the **User Info** page. Its username is "guest", password is "guest123".

1.2.3.6 Add Shared Resource

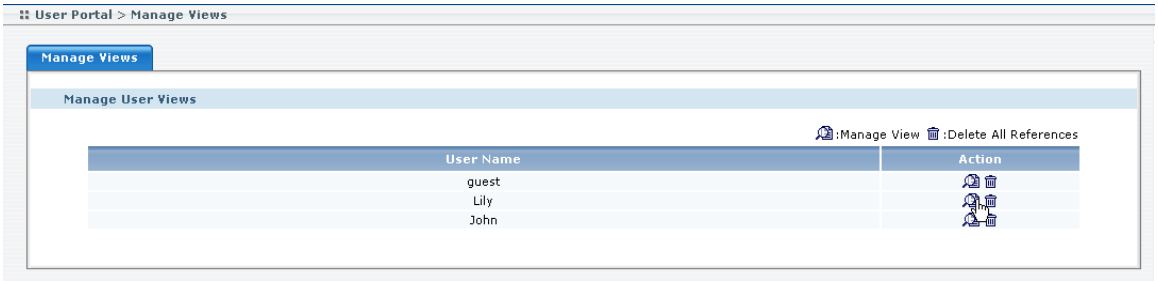
1. For adding shared photos, music, videos and folders:
    a. Go to User Portal→Manage Views.



Three user accounts are listed on the main screen of **Manage Views**.

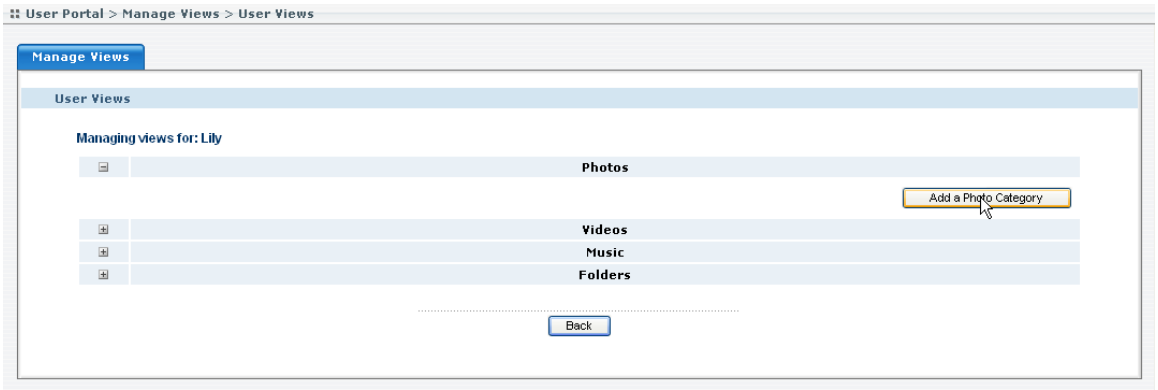
    b. Click the **Manage View** icon in the account item of which the settings will be set.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

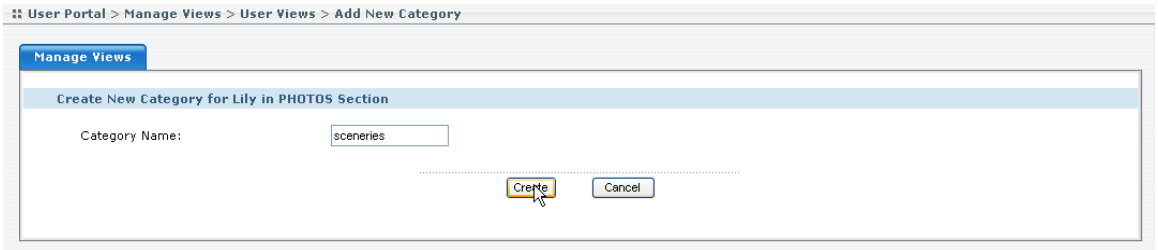


c. The page **Manage Views for: Lily** is shown. There're four main groups: **Photos**, **Music**, **Videos** and **Folders**. According to the administrator's will, he can add his photos, music, videos or some folders in the corresponding groups.

In the **Photos** group, click the **Expand** button to expand the group, and press the **Add a Photo Category** radio button.

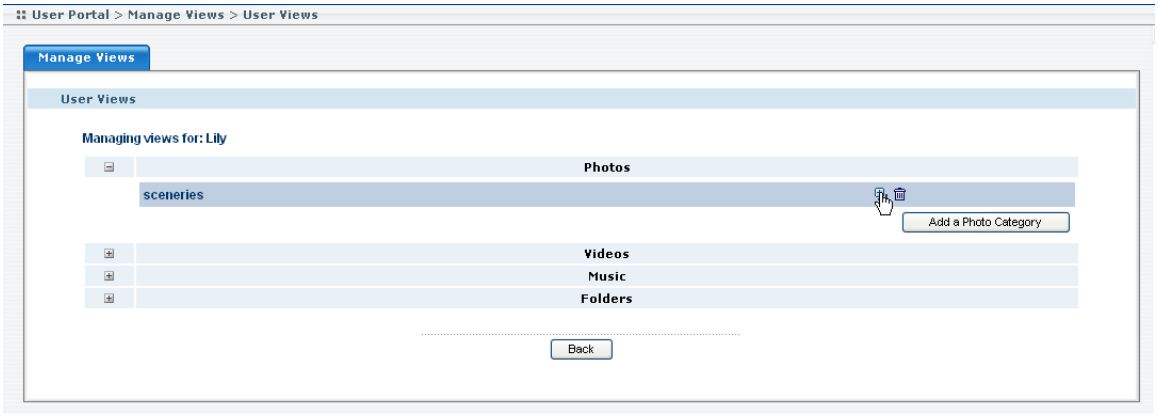


d. Enter a name for this category.

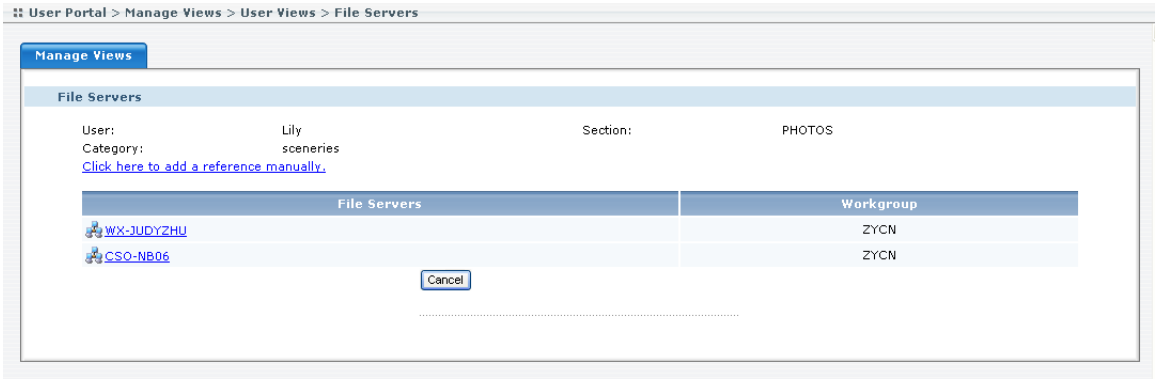


e. Click **Add new reference** button.

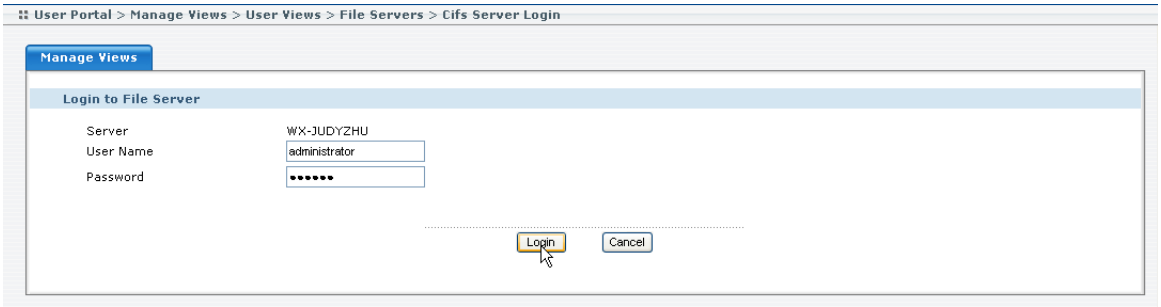
All contents copyright (c) 2007 ZyXEL Communications Corporation.



f. A list of available servers on the LAN will be shown on the following page. Click the PC which the shared resources located. If the PC with the resources to be shared isn't in this list, please click **Click here to add a reference manually**.



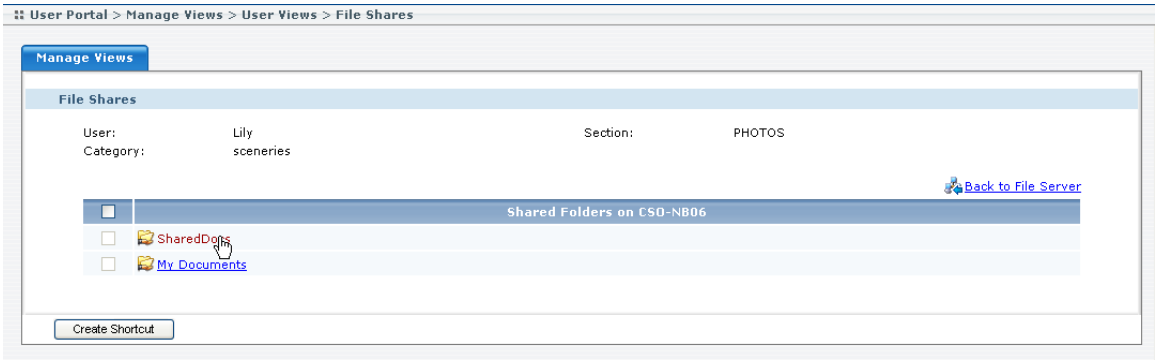
g. After clicking the server for the first time, login screen will appear, where the login credentials to access that PC should be input.



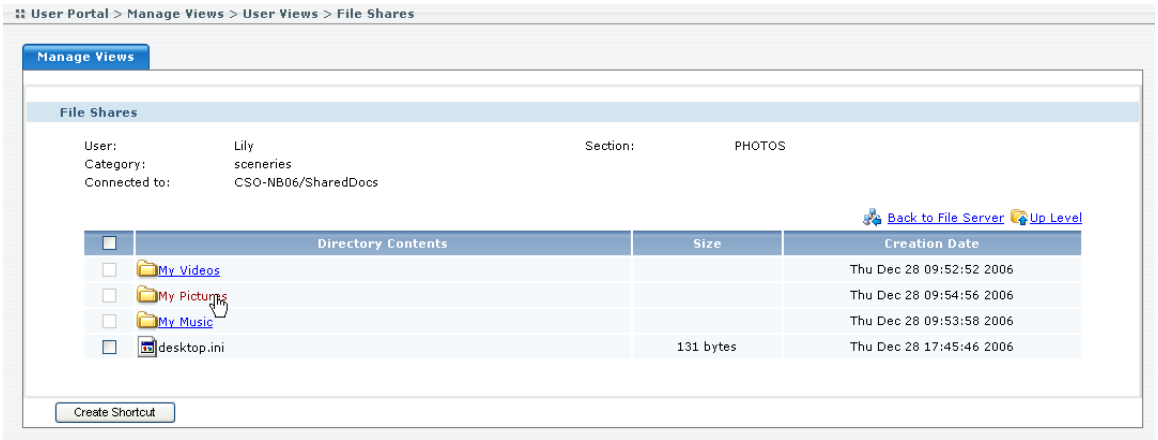
All contents copyright (c) 2007 ZyXEL Communications Corporation.

Note: After successfully accessing the file share server in this list, the server will be automatically enlisted to the server list in the Manage Servers page.

h. Select the folder with the resources that are to be shared.

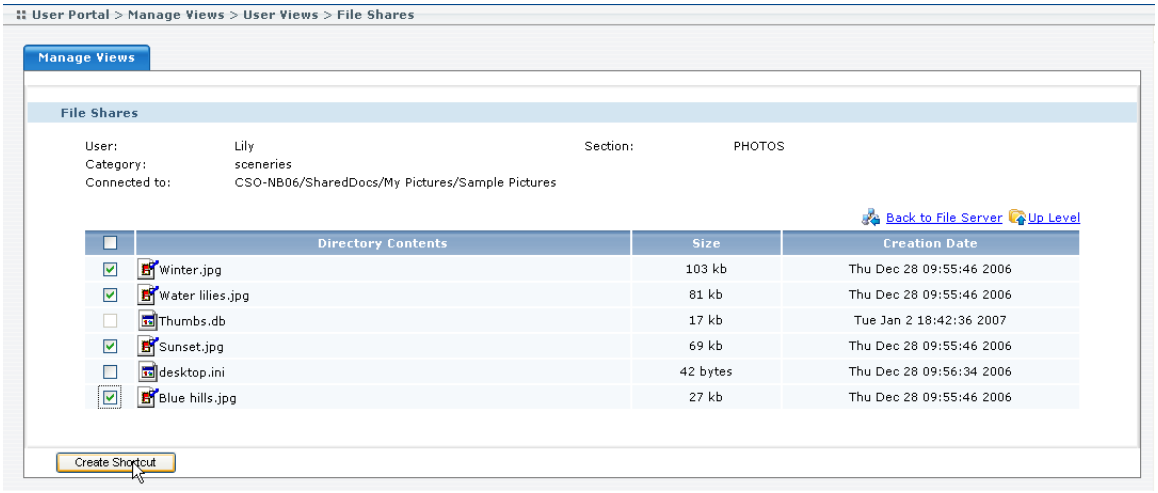


i. Click on to select the folder with the resource to be shared.

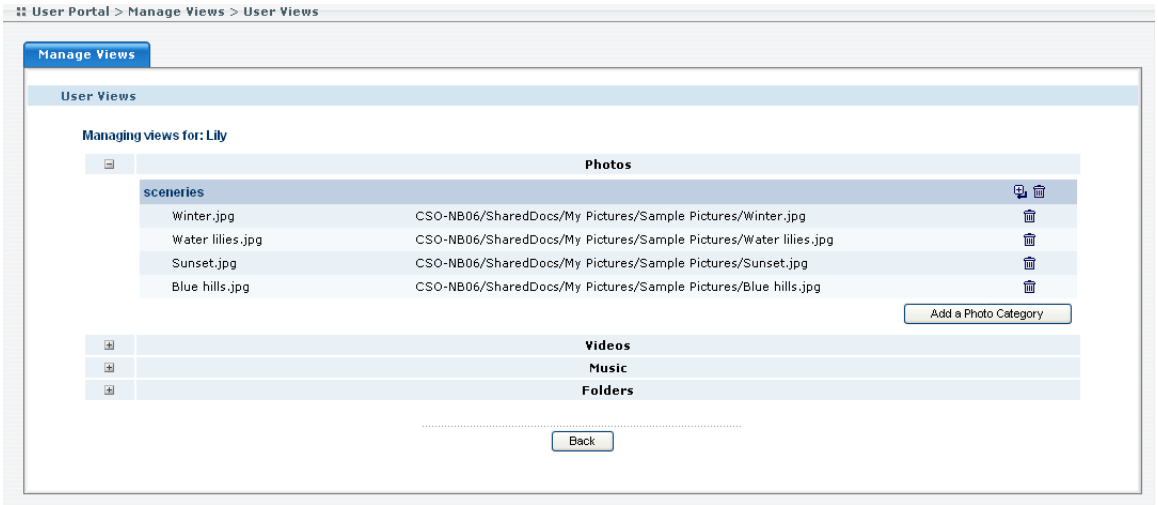


j. Select the photos and press **Create Shortcut**.

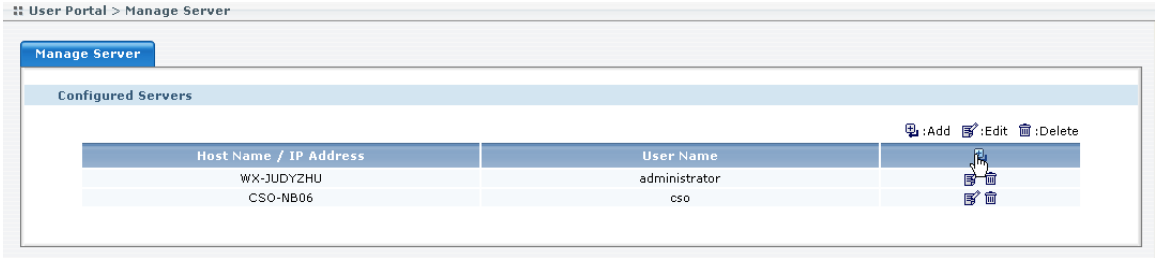
All contents copyright (c) 2007 ZyXEL Communications Corporation.


User Portal > Manage Views > User Views > File Shares
Manage Views
File Shares
User: Lily
Section: PHOTOS
Category: sceneries
Connected to: CSO-NB06/SharedDocs/My Pictures/Sample Pictures
Back to File Server
Up Level
Directory Contents
Size
Creation Date
Winter.jpg 103 kb Thu Dec 28 09:55:46 2006
Water lilies.jpg 81 kb Thu Dec 28 09:55:46 2006
Thumbs.db 17 kb Tue Jan 2 18:42:36 2007
Sunset.jpg 69 kb Thu Dec 28 09:55:46 2006
desktop.ini 42 bytes Thu Dec 28 09:56:34 2006
Blue hills.jpg 27 kb Thu Dec 28 09:55:46 2006
Create Shortcut

k. A list of the shared photos will be shown in the **sceneries** category on the page **Managing Views for: Lily**.

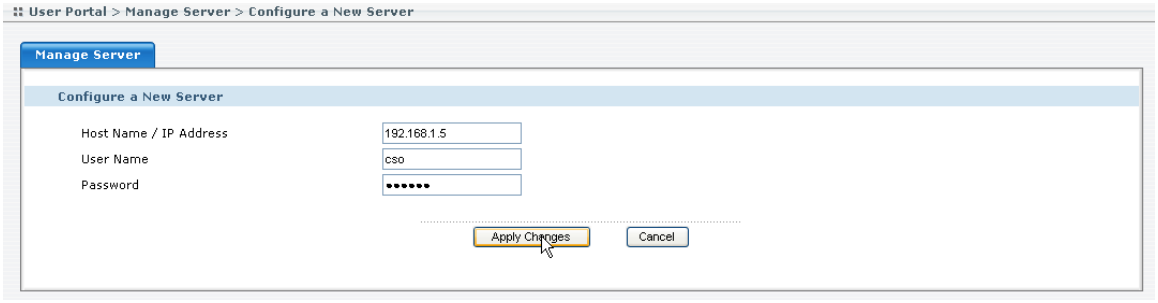


l. If the PC with resources to be shared isn't in the server list, please first go to **Manage Servers** page, click **Add** button to let out the configuration page.

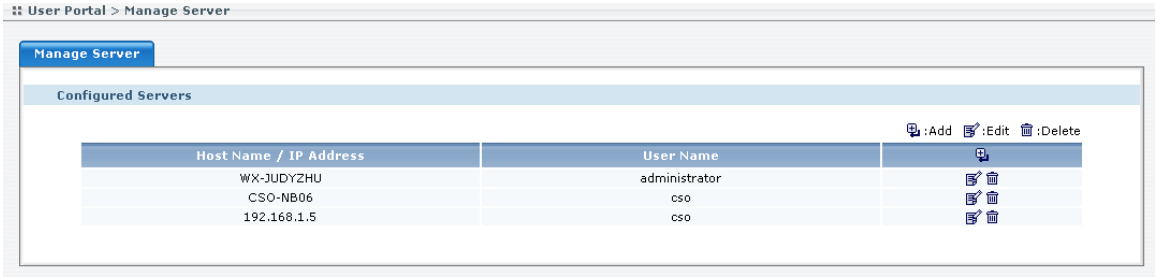


All contents copyright (c) 2007 ZyXEL Communications Corporation.

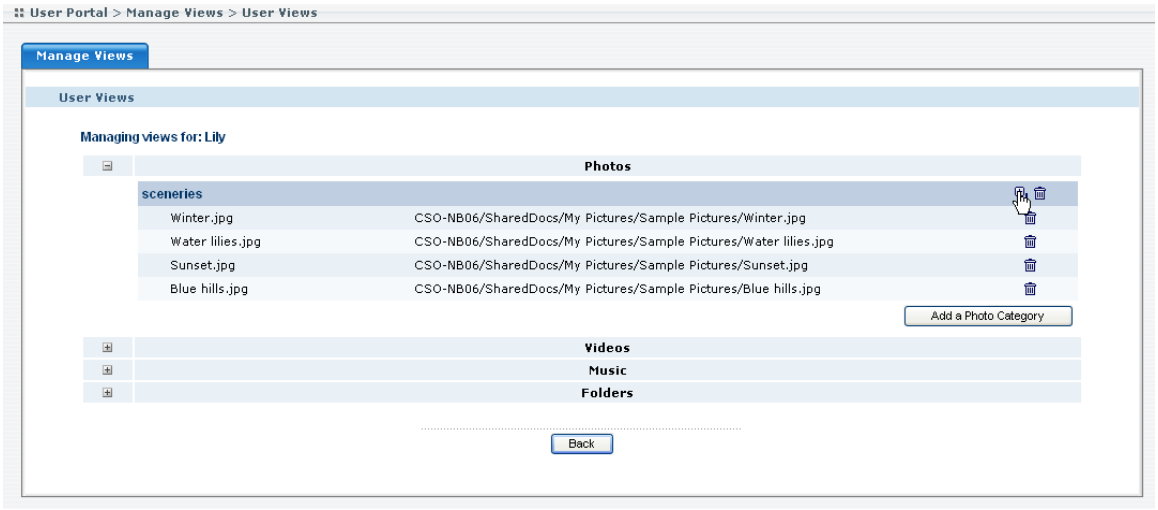
m. Fill in the file share server's IP or Host Name, and its login username and password.



n. The new server is shown on the server list on the **Manage Servers** page.

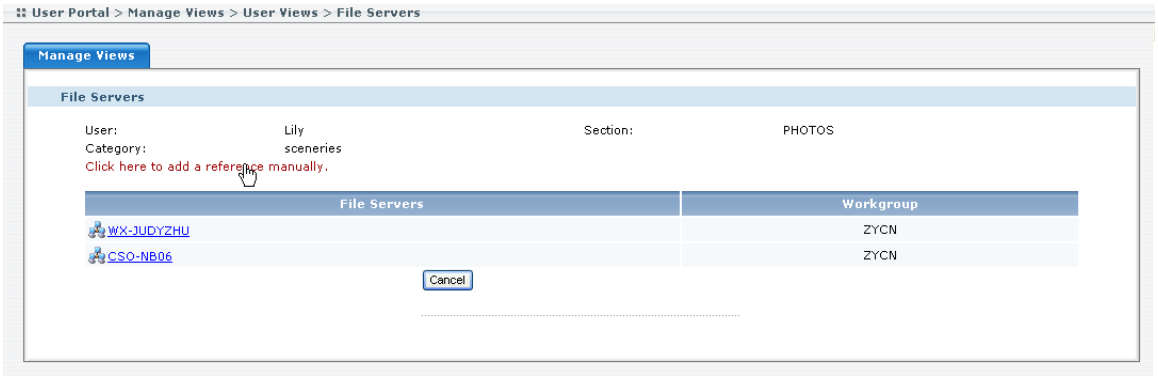


o. Go back to **Manage Views→Manage Views for: Lily**. Expand the category to which the new reference is to be added, and click the **Add** button in the category.

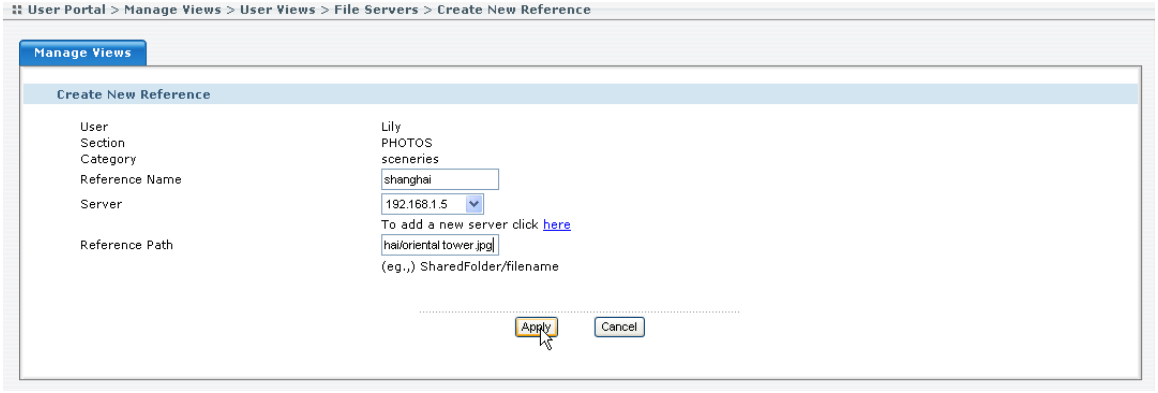


p. Press Click here to add a reference manually.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

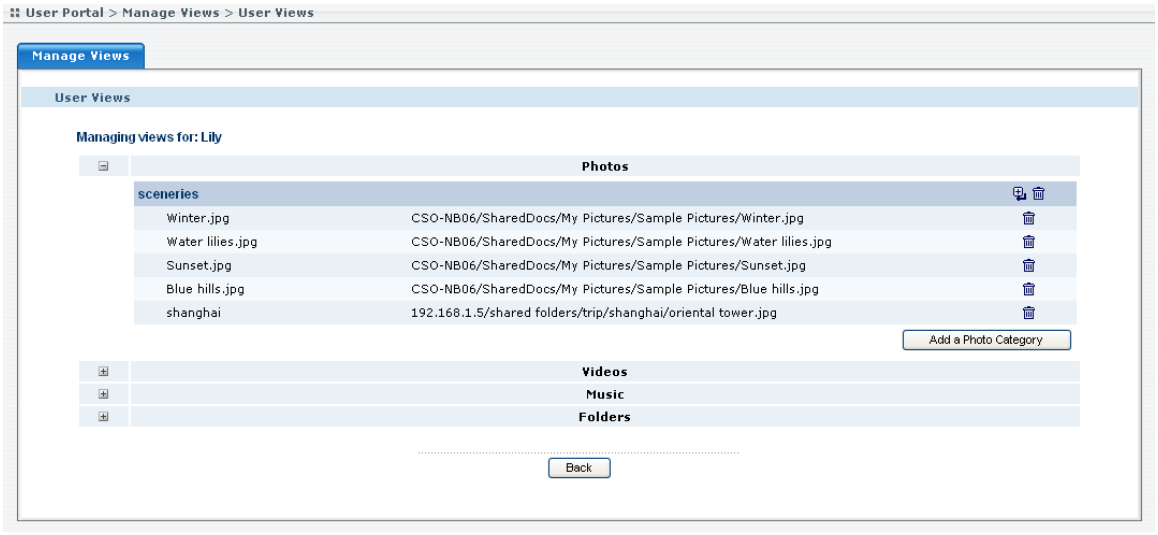


q. Enter a descriptive name, choose the manually added server, and enter the Reference Path. Reference path will be the path starting from the shared folder and you should also include the file extension when creating references manually.



r. The manually added the reference will be shown in this category.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



s. To add videos, music and folders to the respective sections, please follow the same steps as adding photos.

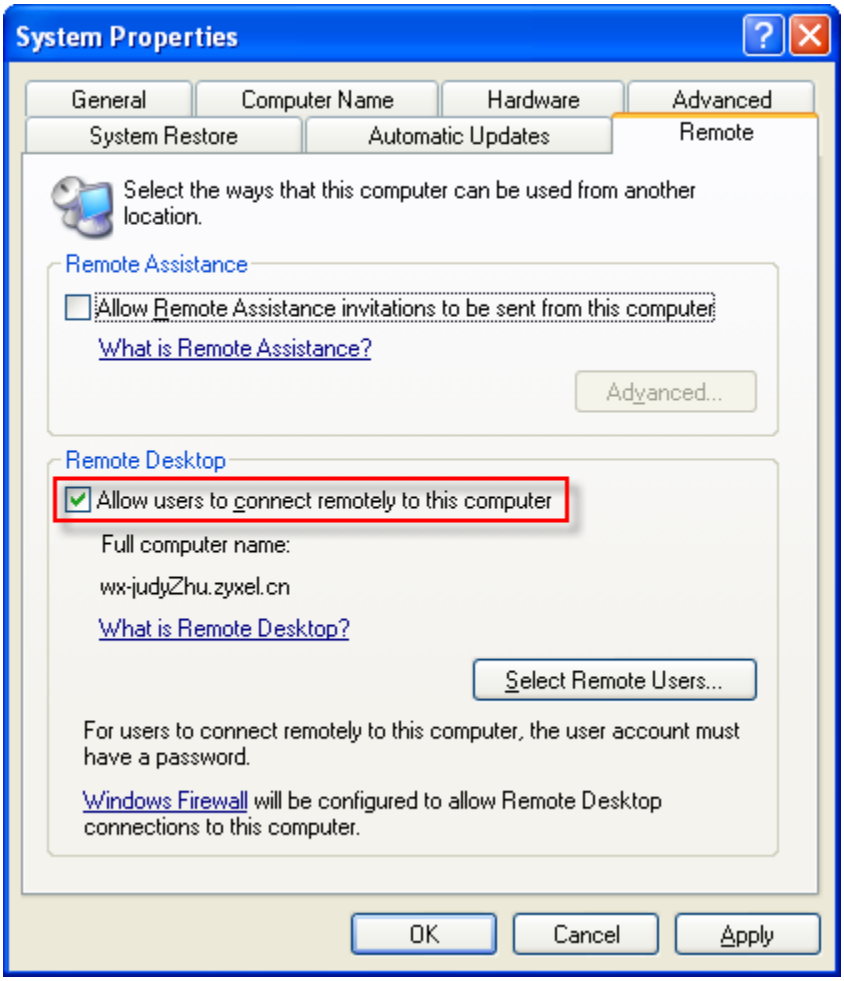
Any kind of video and music file can be added as a reference. Please make sure that suitable Video Player application is available on the Client PC to play the files.

2. For adding desktop links:

Before using this function, if user wants to use RDP for sharing the remote desktop, please enable the remote desktop service in the PC whose desktop is to be remotely accessed.

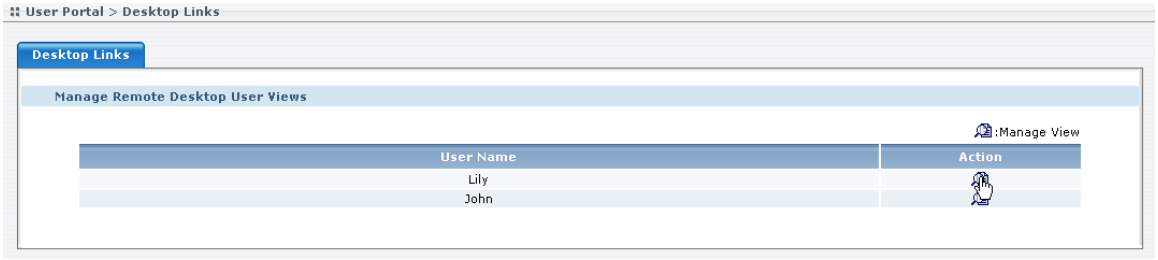
In the PC whose desktop is to be allowed remotely accessed, go to **Start→Control Panel→System Properties**. Select the **Remote** tab. Check **Allow users to connect remotely to this computer**.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



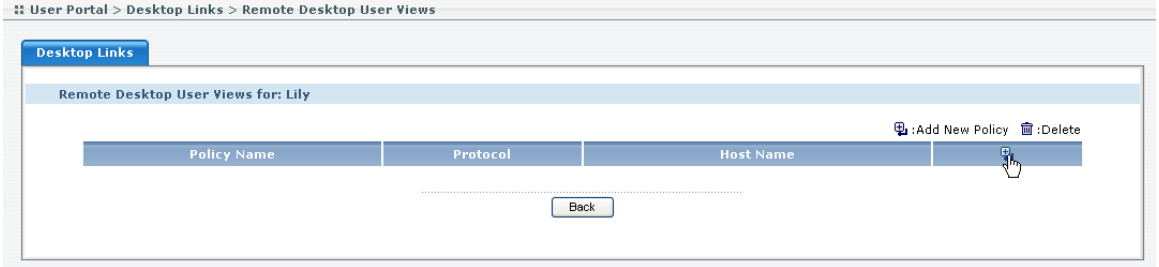
If user wants to use VNC for sharing the remote desktop, please make sure VNC server is running on the PC whose desktop is to be shared.

a. Go to **User Portal→Desktop Links**. A list of previously created accounts in step 3 will be shown on the main page.

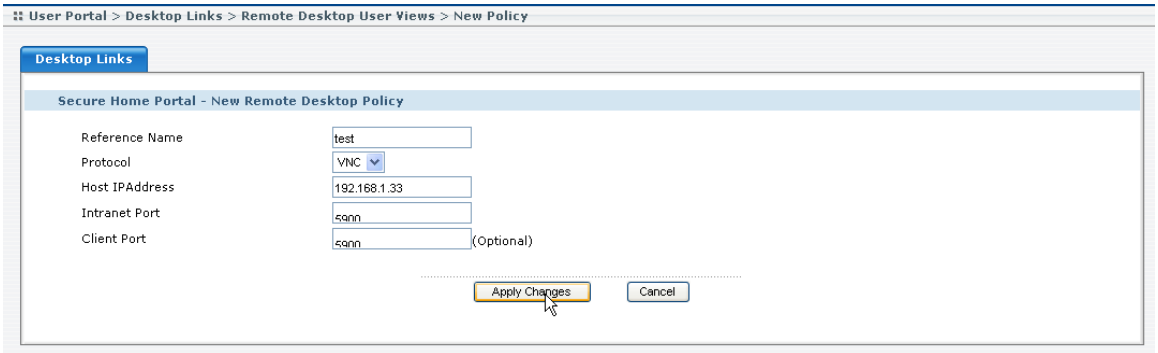


All contents copyright (c) 2007 ZyXEL Communications Corporation.

b. Click the **Manage View** icon in the account entry (in this example, the account Lily is to be edited), and the **Remote Desktop user Views for: Lily** will show.



c. Click **Add New Policy** icon . Enter a descriptive name for the desktop link. According to which protocol the shared desktop server is using, choose the protocol from the dropdown list. Enter the shared desktop server's IP address. Intranet port is the port on which the desktop sharing server (RDP/VNC server) is running. This is useful since while RDP always only runs on port 3389, VNC server can run on any port.
Client port is the one to which the VPN client connects to. Normally this will be the same as Intranet port. This is useful particularly when a VNC server is also running on Client PC on the same port 5900, then client port should be different from 5900, otherwise VNC client will try to connect to the same machine.

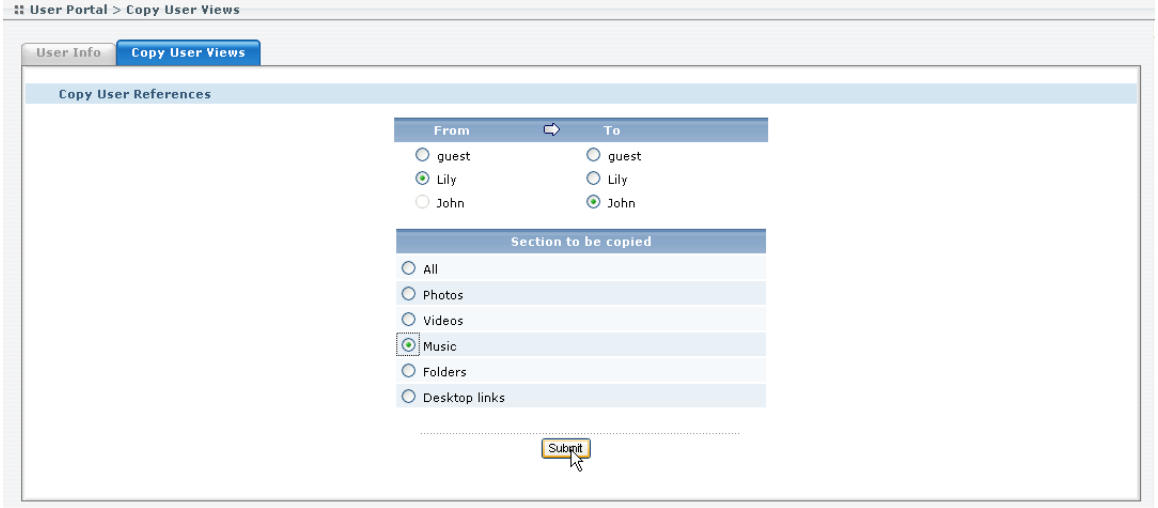


For creating shared files and desktop links for John, please follow the same steps described above as Lily.

Besides, you can also copy the views from Lily to other user accounts.

Depending on the administrator's choice, all the contents of all the sections or some specific sections can be copied from one user account to another. But note that desktop links can't be copied to the "guest" user account.

All contents copyright (c) 2007 ZyXEL Communications Corporation.



1.2.4 Accessing the Secure Home Portal

- Before Accessing
- Remote Accessing the Secure Home Portal

1.2.4.1 Before Accessing

Secure Home Portal is tested on the following browsers. Please make sure that you have the mentioned versions of the browsers or any latest versions of the same.

1. **Internet Explorer 6.0 + KB 833989 (security patch from Windows update site)**
2. **Netscape 7.2**
3. **Firefox 1.0**
4. **Mozilla 1.7.3**

You need to install Java Runtime Environment (JRE) 1.5.0 or later to access Desktop links. For accessing other links like Photos, Videos and Music Java need not be installed.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

1.2.4.2 Remote Accessing the Secure Home Portal

1. The secure user portal can be accessed via **https://<WAN-IP>.** If the NBG-510S has been configured to use DDNS, please access via **https://<pre-assigned domain name>.** Client can also access via **http://<WAN-IP>** or **http://<pre-assigned domain name>**, then they will be directed to the https connection.

The secure user portal login page will be displayed.

Enter the username and password that the administrator has created.

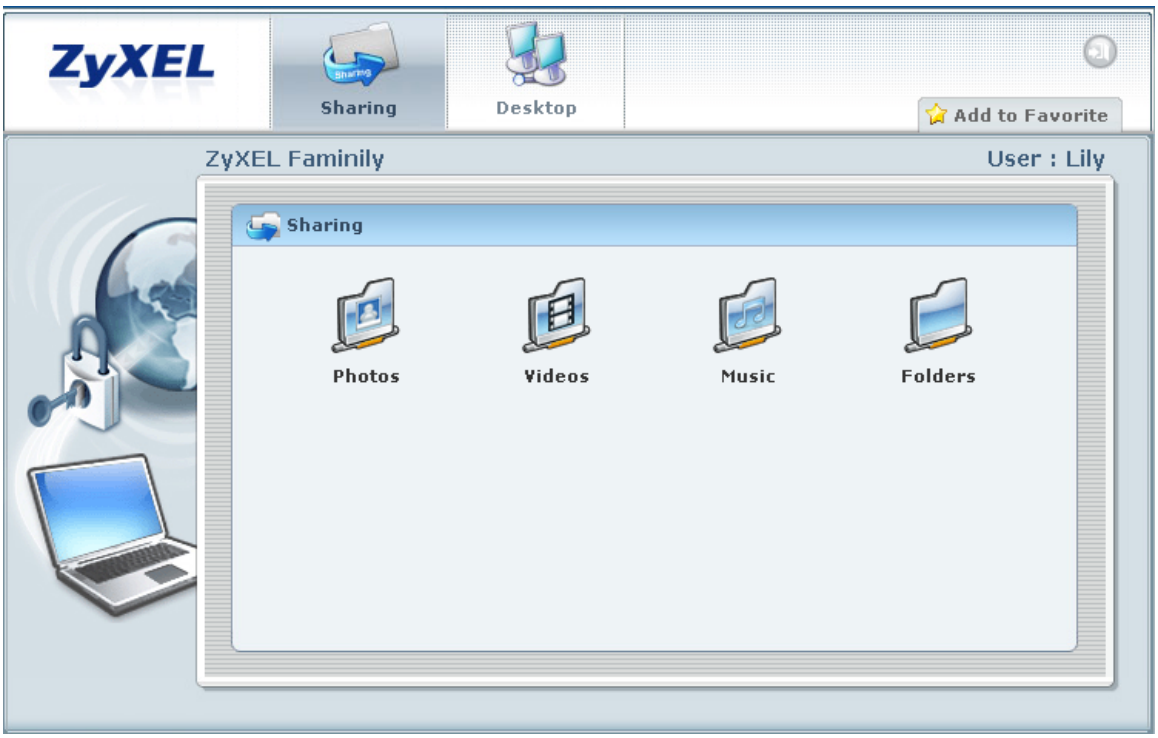
Note: Depending on if you want to clean the HTTP cache after performing the tasks. If you are using your PC to configure NBG-510S without any security concern, leave it just as default 'I am connecting via my own computer'. Otherwise, choose 'I am connecting via Public computer' instead.

2. Accept the security alert.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

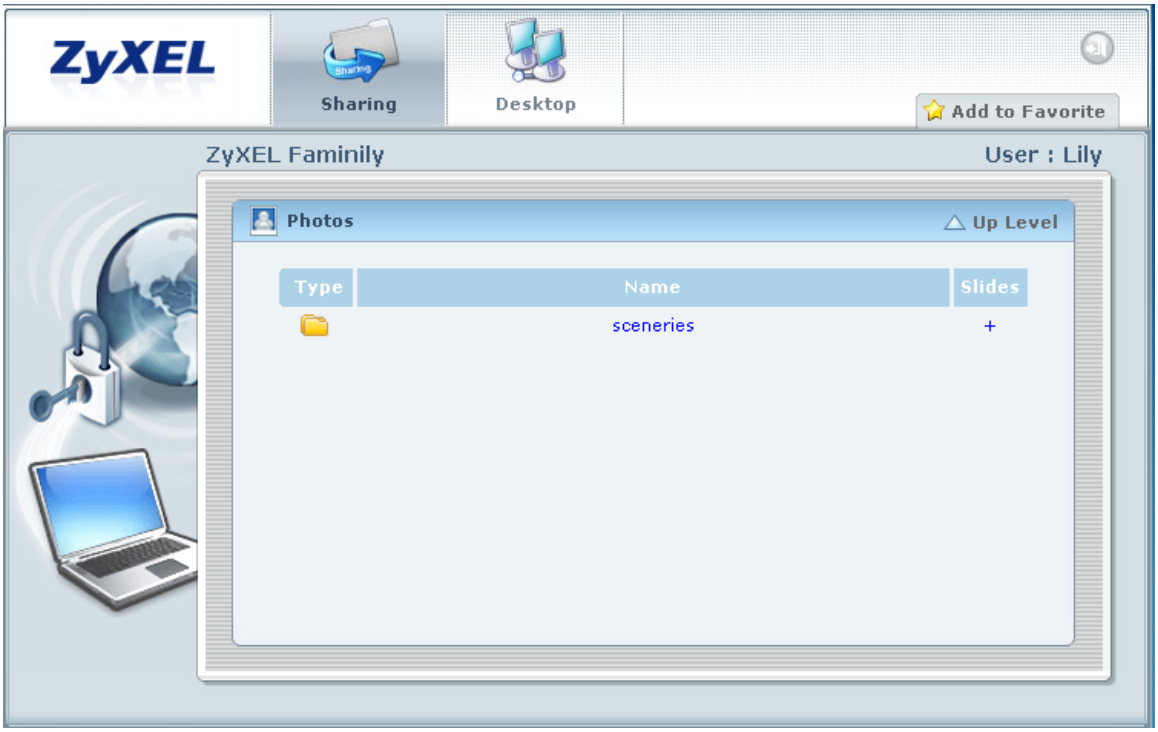
Security Alert
Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.
The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.
The security certificate date is valid.
The name on the security certificate is invalid or does not match the name of the site
Do you want to proceed?
Yes
No
View Certificate

3. In the **Sharing** tab, there will show four sections of shared files. Click each section to view the contents in it.



All contents copyright (c) 2007 ZyXEL Communications Corporation.

4. In the **Photos** section, click the **+** hyperlink, a slideshow view for all the pictures in a category will show. Click the category name hyperlink, a list of the pictures will show. You can click each reference's hyperlink to view the photo.

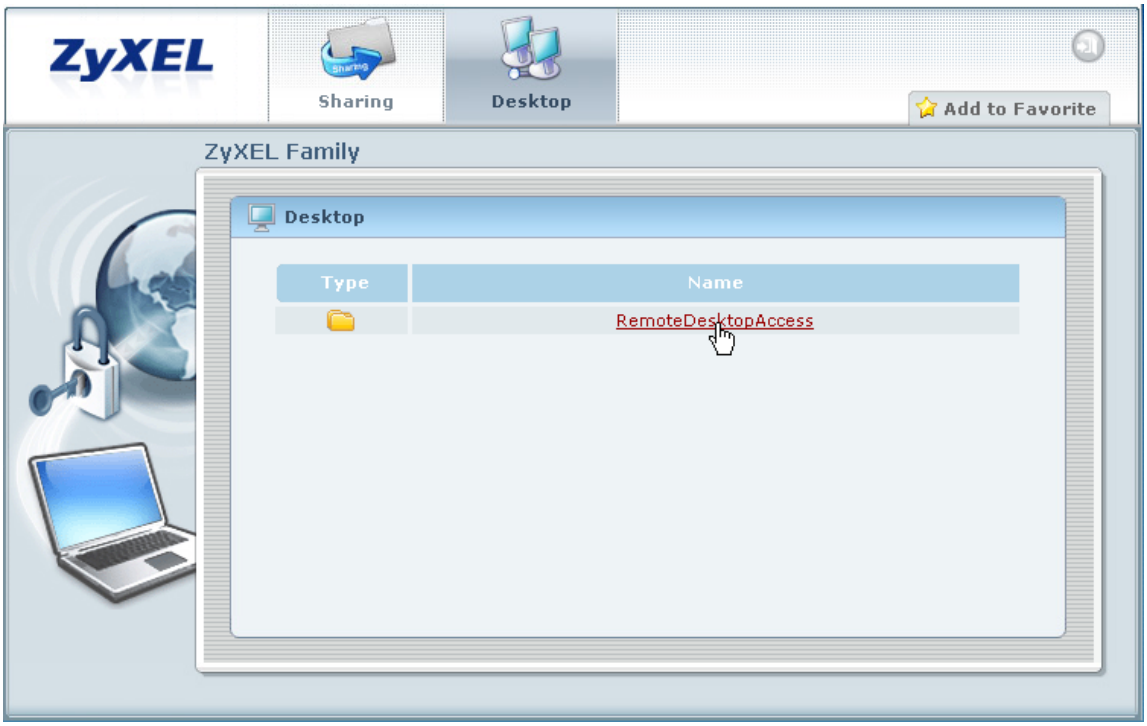


5. For the **Music** and **Videos** sections, click the reference's hyperlink, the file will be downloaded and played by a respective player.

Note: Video and music references some times may not play when viewed in Internet Explorer. This is because of a known issue with windows media player. In such situations, you are advised to use some other browsers like Netscape, Mozilla etc.

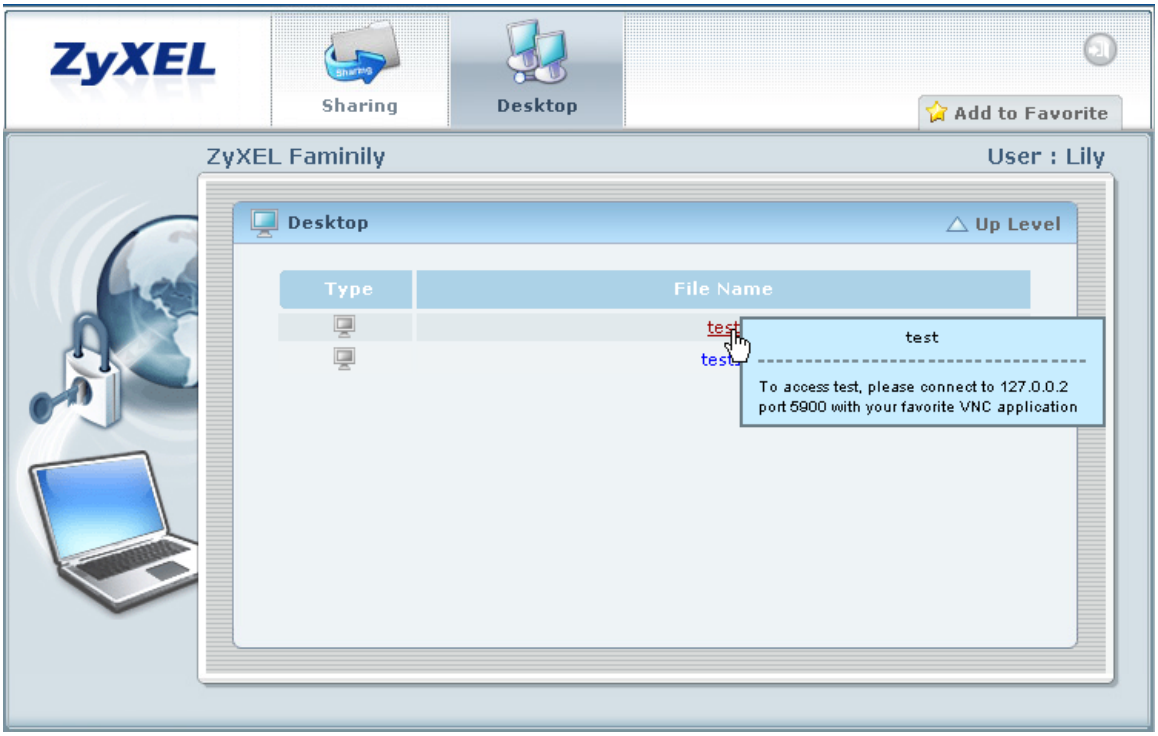
6. Click the **Desktop** icon, and click on the **RemoteDesktopAcess** hyperlink.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

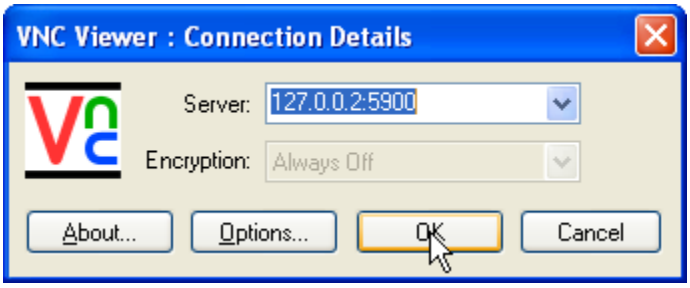


7. A list of the desktop links the administrator created for this user will show. When the cursor is moved over the hyperlink, a tool tip will show with IP address and port number. Then the user can use his favorite application to connect to the remote server with the IP address and port number.

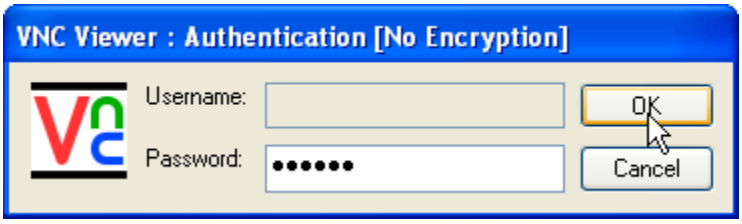
All contents copyright (c) 2007 ZyXEL Communications Corporation.



8. To access the Desktop link “test”, we need to use a VNC client application. Start your favorite VNC client , input the IP address with port number shown on the tip.

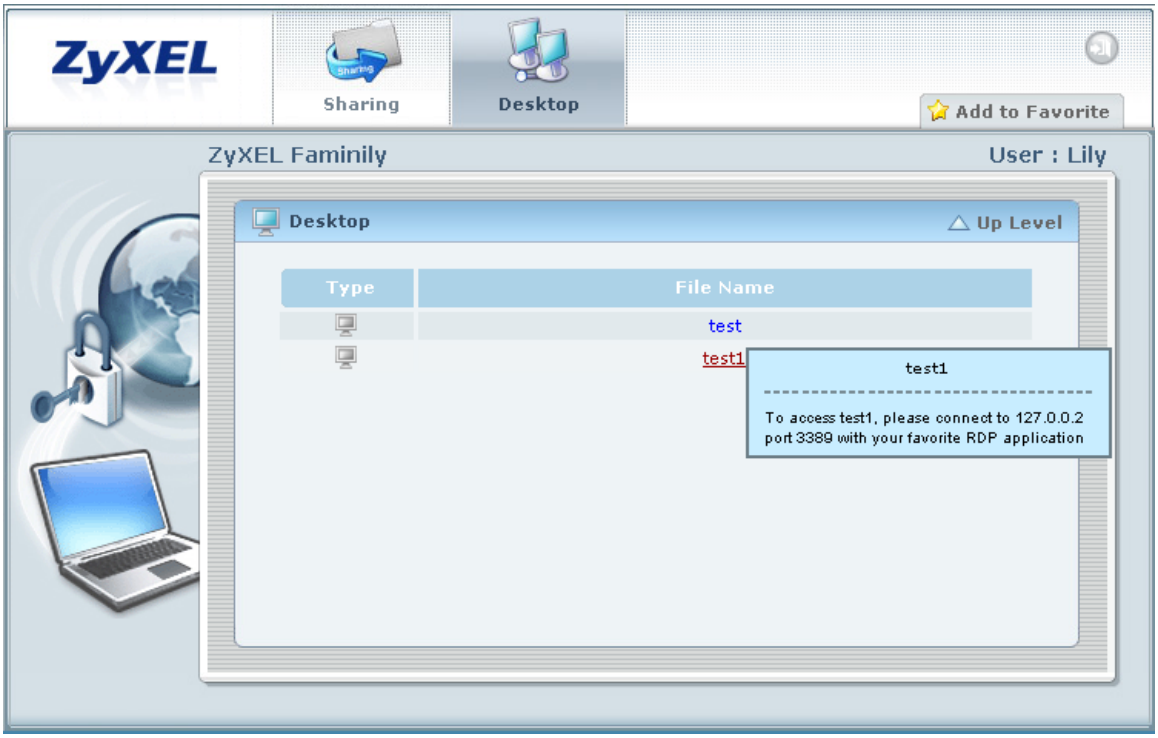


9. Enter the password that has been configured on the VNC server. After passing authentication, the remote server’s desktop will be shared.

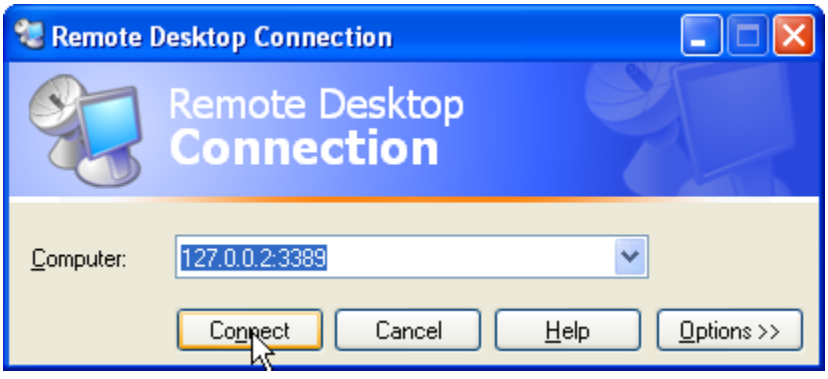


All contents copyright (c) 2007 ZyXEL Communications Corporation.

10. To access the Desktop link “test1”, we need to use the RDP application.



11. Start RDP and input the IP address with port number shown on the tip.



12. Enter the remote RDP sever’s user credentials, and click **OK**, the remote server’s desktop will be shared.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

2 Product FAQ

1. What is the NBG-510S Internet Access Sharing Router?

NBG-510S is a broadband Home and small Business Gateway with Five Switched Fast Ethernet Ports. It allows multiple computers to share a cable or DSL Ethernet Internet connection and securely share your LAN resources with remote clients by the Secure Home Portal function. With Secure Home Portal, the remote clients with user accounts can share the NBG-510S' LAN resources via https connection. By integrating NAT, ZyXEL's NBG-510S provides not only the ease of installation and Internet access, but also provides Access Control to restrict outbound traffic from LAN to Internet.

Virtually all-popular applications over Internet, such as Web, E-Mail, FTP, Telnet, Gopher, are supported.

2. Will the NBG-510S work with my Internet connection?

The NBG-510S is designed to be compatible with cable and ADSL modems. Most external Cable and ADSL modems use an Ethernet port to connect to your computer so the NBG-510S is placed in the line between the computer and the External modem. As long as your Internet Access device has an Ethernet port, you can use the NBG-510S. Besides, if your ISP supports PPPoE you can also use the NBG-510S, because PPPoE had been supported in the NBG-510S.

3. What do I need to use the NBG-510S?

You need an ADSL modem or cable modem with an Ethernet port to use the NBG-510S. The NBG-510S has five Ethernet ports: LAN port and WAN port. You should connect the computer to the LAN port and connect the external modem to the WAN port. If the ISP uses PPPoE or RoadRunner Authentication you need the user account to enter in the NBG-510S.

4. What is PPPoE?

PPPoE stands for **P**oint-to-**P**oint **P**rotocol **O**ver **E**thernet that is an IETF draft standard specifying how a computer interacts with a broadband modem (i.e. xDSL, cable, wireless, etc.) to achieve access to the high-speed data networks via a familiar PPP dialer such as 'Dial-Up Networking' user interface. PPPoE supports a broad range of existing applications and service including authentication, accounting, secure access and configuration management. There are some service providers running of PPPoE today. Before configuring PPPoE in the NBG-510S, please make sure your ISP supports PPPoE.

5. Does the NBG-510S support PPPoE?

Yes. The NBG-510S supports PPPoE.

6. How do I know I am using PPPoE?

All contents copyright (c) 2007 ZyXEL Communications Corporation.

PPPoE requires a user account to login to the provider's server. If you need to configure a user name and password on your computer to connect to the ISP you are probably using PPPoE. If you are simply connected to the Internet when you turn on your computer, you probably are not. You can also check your ISP or the information sheet given by the ISP. Please choose PPPoE as the encapsulation type in the NBG-510S if the ISP uses PPPoE.

7. Why does my provider use PPPoE?

PPPoE emulates a familiar Dial-Up connection. It allows your ISP to provide services using their existing network configuration over the broadband connections. Besides, PPPoE supports a broad range of existing applications and service including authentication, accounting, secure access and configuration management.

8. Which Internet Applications can I use with the NBG-510S?

Most common applications includes MIRC, PPTP, ICQ, Cu- SeeMe, NetMeeting, IP/TV, RealPlayer, VDOLive, Quake, Quake11, Quake111, StarCraft, & Quick Time.

9. How can I configure the NBG-510S?

Web browser- web server is embedded for easy configurations.

10. What network interface does the NBG-510S support?

The NBG-510S supports 10/100M Ethernet to connect to the computer and 100M Ethernet to connect to the external cable or ADSL modem.

11. What can we do with NBG-510S?

Browse the World Wide Web (WWW), send and receive individual e-mail, and download software. Allow remote users access secure home portal to securely enjoy the LAN resources that the administrator granted. These are just a few of many benefits you can enjoy when you put the whole office on-line with the NBG-510S Internet Access Sharing Router.

12. Does NBG-510S support dynamic IP addressing?

The NBG-510S supports either a static or dynamic IP address from ISP.

13. What is the difference between the internal IP and the real IP from my ISP?

Internal IP's are sometimes referred to as virtual IPs. They are a group of up to 255 IPs that are used and recognized internally on the local area network. They are not intended to be recognized on the Internet. The real IP from ISP, instead, can be recognized or pinged by another real IP. The NBG-510S Internet Access Sharing Router works like an intelligent router which routes between the virtual IP and the real IP.

14. How does e-mail work through the NBG-510S?

All contents copyright (c) 2007 ZyXEL Communications Corporation.

It depends on what kind of IP you have: Static or Dynamic. If your company has a domain name, it means that you have a static IP address. Suppose your company's e-mail address is xxx@mycompany.com. Joe and Debbie will be able to send e-mail through NBG-510S Internet Access Sharing Router using joe@mycompany.com and debbie@mycompany.com respectively as their e-mail addresses. They will be able to retrieve their individual private and secure e-mail, if they have been assigned the proper access right.

If your company does not have a domain name, it means that your ISP provides you with a dynamic IP address.

Suppose your company's e-mail address is mycompany@ispname.com. Jane and John will be able to send e-mail through NBG-510S Internet Access Sharing Router using "jane"<mycompany@ispname.com> and "john"<mycompany@ispname.com> respectively as their e-mail addresses. Again, they will be able to retrieve their individual private and secured e-mail, if they have been assigned the proper access right.

15. What is the main difference between WinGate and the NBG-510S?

- WinGate is software only solution that needs to be installed in a dedicated Windows 95 PC based server. The total cost and complexity are many times over ATI's product. The NBG-510S Internet Access Sharing Router is a plug-n-play internet appliance.
- WinGate requires all TCP/IP applications such as Netscape Navigator to be reconfigured to have the dedicated server as a proxy. The NBG-510S Internet Access Sharing Router does not require users to reconfigure any software at all.
- The NBG-510S Internet Access Sharing Router uses Network Address Translation (NAT) scheme, which supports all TCP/UDP ports. WinGate only supports limited number of ports, such as http(80), ftp(21), telnet(23), and pop3(110).
- WinGate works as a proxy, while the NBG-510S Internet Access Sharing Router works as a gateway. The gateway approach is more efficient than the proxy during the processing of TCP/IP commands. As a result, the NBG-510SInternet Access Sharing Router achieves 10% to 20% higher performance than that of software solutions such as WinGate.
- The NBG-510S Internet Access Sharing Router uses Solid State Disk technology. There are no moving parts in the product. It is much more reliable than any hard disk based system, such as the one for WinGate.

16. What is the difference between the 'Standard' and 'RoadRunner' service?

The US **Road Runner** service requires the user to "log in" to the service before it can send any packets to the outside network. This is apparently implemented in the TAS (Toshiba Authentication System) with a packet filtering firewall in the upstream direction. Before login, one can send ICMP packets (e.g., ping) to the outside Internet, but nearly all other upstream TCP and UDP packets are blocked. The user can only speak to the local DNS/login server.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

Downstream packets do not appear to be filtered or blocked at any time, whereas **Standard** service refers to the cable services which have no login requirements.

17. Is it possible to access a server running behind SUA from the outside Internet? If possible, how?

Yes, it is possible because NBG-510S delivers the packet to the local server by looking up to a SUA server table. Therefore, to make a local server accessible to the outside users, the port number and the inside IP address of the server must be configured in web page **Network→NAT→Port Forwarding**.

18. What DHCP capability does the NBG-510S support?

The NBG-510S supports DHCP client on the WAN port and DHCP server on the LAN port. The NBG-510S's DHCP client allows it to get the Internet IP address from ISP automatically. The NBG-510S's DHCP server allows it to automatically assign IP and DNS addresses to the clients on the local LAN.

19. What network interface does NBG-510S support?

NBG-510S supports auto MDX/MDIX 10/100M Ethernet LAN/WAN port to connect to the computer on LAN and 10/100M Ethernet to connect to the external cable or ADSL modem on WAN.

---

3 Advanced FAQ

1. Why is my connection to the Secure Home Portal secure?

When accessing the Secure Home Portal, the connection between remote user and the NBG-510S is SSL secured, which means the entire application layer data are secured by SSL protocol. Secure Sockets Layer (SSL) is interposed between the transport layer and application layer. Once the connection is established, the SSL's main job is handling compression and encryption.

2. How can I remotely access the Secure Home Portal of NBG-510S?

Via https://< WAN-IP of NBG-510S> or https://<pre-assigned domain name>.

User can also just input http://<WAN-IP of NBG-510S> or http://<pre-assinged domain name>, and will be automatically redirected to https connection.

3. Why can't I see my file share server in the list of File Servers when I'm managing User Views?

All contents copyright (c) 2007 ZyXEL Communications Corporation.

Some of the possible reasons why the server, which is connected to the network, is not listed in the list of File Servers are

- Your Gateway, enumerates/queries for the list of all the servers, which support File Sharing for every 1-minute. There could be a possibility that when the query happened the PC was not connected to the LAN or must have been shutdown. Correct the problem in such cases and please wait for sometime, so that the system will be displayed in the File Servers.
- It could be a Linux PC running samba, which is a member of some workgroup, in which there is no other windows machine belonging to the same workgroup.
- "Client for Microsoft Networks" should be installed for the Network interface in the Windows PC.
- (4) If any Firewall software is running on the Windows/Linux PC's you have to make sure that port numbers 137/138/139 are allowed. Otherwise the server will not be displayed in the File Servers page.

4. How fast can the data be?

The speed of the cable modem is only one part of the equation. There are a combination of factors starting with how fast your PC can handle IP traffic, then how fast your PC to cable modem interface is, then how fast the cable modem system runs and how much congestion there is on the cable network, then how big a pipe there is at the head end to the rest of the Internet.

Different models of PCs and Macs are able to handle IP traffic at varying speeds. Cable modems on the same node share bandwidth, which means that congestion is created when too many people are on simultaneously. One user downloading large graphic or video files can use a significant portion of shared bandwidth, slowing down access for other users in the same neighborhood.

To create the appearance of faster network access, service companies plan to store or "cache" frequently requested web sites and Usenet newsgroups on a server at their head-end. Storing data locally will remove some of the bottleneck at the backbone connection.

5. What is BOOTP/DHCP?

BOOTP stands for Bootstrap Protocol. DHCP stands for Dynamic Host Configuration Protocol. Both are mechanisms to dynamically assign an IP address for a TCP/IP client by the server. In this case, the NBG-510S Internet Access Sharing Router is a BOOTP/DHCP server. WinXP and WinNT clients use DHCP to request an internal IP address, while WFW and WinSock clients use BOOTP. TCP/IP clients may specify their own IP or utilize BOOTP/DHCP to request an IP address.

All contents copyright (c) 2007 ZyXEL Communications Corporation.

6. What is DDNS?

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname, allowing your computer to be more easily accessed from various locations on the Internet. To use the service, you must first apply an account from several free Web servers such as members.dyndns.org.

Without DDNS, we always tell the users to use the WAN IP of the NBG-510S to reach our internal server. It is inconvenient for the users if this IP is dynamic. With DDNS supported by the NBG-510S, you apply a DNS name (e.g., www.zyxel.com.tw) for your server (e.g., Web server) from a DDNS server. The outside users can always access the web server using the www.zyxel.com.tw regardless of the WAN IP of the NBG-510S.

When the ISP assigns the NBG-510S a new IP, the NBG-510S updates this IP to DDNS server so that the server can update its IP-to-DNS entry. Once the IP-to-DNS table in the DDNS server is updated, the DNS name for your web server (i.e., www.zyxel.com.tw) is still usable.

7. When do I need DDNS service?

When you want your internal server to be accessed by using DNS name rather than using the dynamic IP address we can use the DDNS service. The DDNS server allows to alias a dynamic IP address to a static hostname. Whenever the ISP assigns you a new IP, the NBG-510S sends this IP to the DDNS server for its updates.

8. What DDNS servers does the NBG-510S support?

The DDNS servers the NBG-510S supports currently is members.dyndns.org, where you apply the DNS from and update the WAN IP to.

9. Can the NBG-510S SUA handle IPsec packets sent by the IPsec gateway?

Yes, the NBG-510S's SUA can handle IPsec ESP Tunneling mode. We know when packets go through SUA, SUA will change the source IP address and source port for the host. To pass IPsec packets, SUA must understand the ESP packet with protocol number 50, replace the source IP address of the IPsec gateway to the router's WAN IP address. However, SUA should not change the source port of the UDP packets which are used for key managements. Because the remote gateway checks this source port during connections, the port thus is not allowed to be changed.

10. How do I setup my NBG-510S for routing IPsec packets over SUA?

For outgoing IPsec tunnels, no extra setting is required. For forwarding the inbound IPsec ESP tunnel, A 'Default' server or Port Forward rule to forward IKE and ESP(for Service→Custom, choose Protocol ESP) traffic to the destination IPsec gateway is needed to be set in web page **Network→NAT→Port Forwarding** is required. It is because SUA makes your LAN appear as a single machine to the outside world. LAN users are invisible to outside users. So, to make an

All contents copyright (c) 2007 ZyXEL Communications Corporation.

internal server for outside access, we must specify the service port and the LAN IP of this server in this web page. Thus SUA is able to forward the incoming packets to the requested service behind SUA and the outside users access the server using the NBG-510S's WAN IP address.

11. Why can't I use video conferencing with MSN?

This is because MSN require support of UPnP (Universal plug n' play). To be able to use MSN through NBG-510S, you have to enable the UPnP feature under **Management-> UPNP** and Check the enable UPnP check box and press **Apply** button to make it active.

12. How can I access internal server via public IP address assigned on WAN?

You should be able to access your internal server via NBG-510S's WAN IP address when SUA is on. To access your internal server via the public IP address assigned on WAN, please go to **Network→NAT→Port Forwarding**, add a Port Forwarding rule to forward the service's port to the server in LAN, or just set the server as the Default Server.

13. When playing online games, the game client cannot connect to the game server, what should I do?

Problem:

When playing online games, the game client cannot connect to the game server.

Network Scenario:

Game Client <-> ZyXEL Sharing Gateway <-> ADSL modem <-> Internet <-> Game Server

Solution:

Do the following to solve this problem.

1. Check forums for your online game program to find out what port need to be forwarded.
2. Ensure those ports are properly configured to forward to LAN clients.

The following table lists some popular game ports.

Aliens vs. Predator	INPUT UDP 80 INPUT UDP 2300 - 2400 INPUT UDP 8000 – 8999

All contents copyright (c) 2007 ZyXEL Communications Corporation.

Anarchy Online (BETA)	INPUT TCP 7013 INPUT TCP 7500 - 7501 INPUT UDP 7013 INPUT UDP 7500 – 7501
Asheron's Call [support page] [mapping info]	INPUT UDP 9000, 9001, 9004, 9005, 9012, 9013
Battle zone II	INPUT TCP 17770 – 17772
Black and White	INPUT TCP 2611 - 2612 INPUT TCP 6667 INPUT UDP 6500 INPUT UDP 27900
Blizzard Battlenet	INPUT TCP 4000 INPUT TCP 6112 INPUT UDP 6112
Bungie.net, Myth, Myth II Server	INPUT TCP 3453
C&C Generals	INPUT TCP 6667 INPUT TCP 29900 INPUT TCP 29920 INPUT UDP 4321 INPUT UDP 27900
Dark Reign 2	INPUT TCP 26214 INPUT UDP 26214
Delta Force 2	INPUT UDP 3568 INPUT UDP 3569

All contents copyright (c) 2007 ZyXEL Communications Corporation.

Elite Force	INPUT UDP 26000 INPUT UDP 27500 INPUT UDP 27910 INPUT UDP 27960
Everquest	INPUT TCP 1024 - 7000 INPUT UDP 1024 – 6000
F-16, Mig 29	INPUT UDP 3862 INPUT UDP 3863
F-22 Lightning 3	INPUT UDP 3875 INPUT UDP 4533 INPUT UDP 4534 INPUT UDP 4660 - 4670 (for VON)
F-22 Raptor	INPUT UDP 3874, 3875
Fighter Ace II	INPUT TCP 50000 - 50100 INPUT UDP 50000 - 50100 for DX play also open these ports: INPUT TCP 47624 INPUT TCP 2300 - 2400 INPUT UDP 2300 – 2400
Half Life	INPUT UDP 6003 INPUT UDP 7002 INPUT UDP 27010 INPUT UDP 27015 INPUT UDP 27025

All contents copyright (c) 2007 ZyXEL Communications Corporation.

Half Life Server	INPUT UDP 27015
Heretic II Server	INPUT TCP 28910
Hexen II	INPUT UDP 26900
KALI	INPUT UDP 2213 INPUT UDP 6666
Kohan Immortal Sovereigns	INPUT UDP 3855 INPUT UDP 17437 INPUT TCP 3855 INPUT TCP 17437
Motorhead server	INPUT UDP 16000 INPUT TCP 16000 INPUT TCP 16010 - 16030 INPUT UDP 16010 - 16030
MSN Game Zone	INPUT TCP 6667 INPUT TCP 28800 - 29000 for DX play also open these ports: INPUT TCP 47624 INPUT TCP 2300 - 2400 INPUT UDP 2300 – 2400
Need for Speed – Porche	INPUT UDP 9442
Need for Speed 3- Hot Pursuit	INPUT TCP 1030
Outlaws	INPUT UDP 5310

All contents copyright (c) 2007 ZyXEL Communications Corporation.

	INPUT TCP 5310
Quake2 (Client and Server)	INPUT UDP 27910
Rainbow Six (Client and Server)	INPUT TCP 2346
Rogue Spear	INPUT TCP 2346
Soldier of Fortune	INPUT UDP 28910 – 28915
Starcraft	INPUT UDP 6112
Starfleet Command	INPUT TCP 2300 - 2400 INPUT TCP 47624 INPUT UDP 2300 - 2400 INPUT UDP 47624
SWAT3	INPUT TCP 16639 INPUT UDP 16638
Ultima	INPUT TCP 5001 - 5010 INPUT TCP 7775 - 7777 INPUT TCP 8888 INPUT TCP 8800 - 8900 INPUT TCP 9999 INPUT TCP 7875
Warcraft Secure VPN DMZ	INPUT TCP 4000 INPUT TCP 6112 - 6119 INPUT UDP 4000 INPUT UDP 6112 - 6119

All contents copyright (c) 2007 ZyXEL Communications Corporation.

14. What types of content filter does NBG-510S provide?

NGB-510S supports two types of content filterings.

- Restrict Web Data including ActiveX, Java, Cookies, Web proxy
- URL keywords

15. How many URL keywords does NBG-510S support?

10 keywords are supported.

All contents copyright (c) 2007 ZyXEL Communications Corporation.